

50 Years of Service

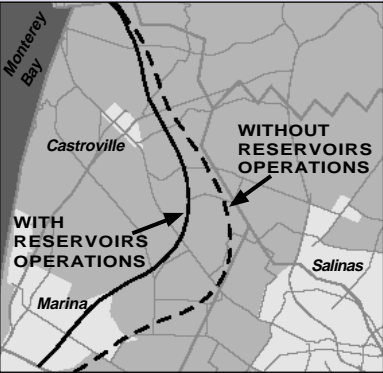
Seawater Intrusion

Seawater intrusion in the coastal areas of the Salinas Valley was recognized in the 1930s. Many wells in the coastal areas have become unusable due to the high level of seawater contamination. The seawater front in the Pressure 180-Foot Aquifer has reached midway between Castroville and Salinas. Wells lowered to the 400-Foot Aquifer in the Castroville area have also been contaminated by seawater. In an effort to stop seawater intrusion, the Monterey County Water Recycling Projects have been put in place, reducing ground water extraction in the coastal areas. These projects will relieve an estimated 40 percent of the seawater intrusion problem. The MCWRA also is now developing a project-level EIR for a water project that will address the remaining 60 percent of the problem.



Merritt Lake, investigated as site for possible surface water storage

Modeling results from the recently completed Hydrologic Benefits Analysis show that the ground water recharge efforts made through reservoir operations since 1957 have helped slow the pace of seawater intrusion (map below).



Chloride Contour Lines, 180-Foot Aquifer, 500 (parts-per-million) ppm

Historical Benefits Analysis

The findings of the Hydrologic, Flood Control and Economic Benefits Analyses were discussed at the Economic Benefits Analysis Workshop #5, held by the MCWRA on October 2 (photo below). A draft report on the Historical Benefits Analysis will be completed for public review by mid-November. It is anticipated that the final report will be available by mid-December.



Hydrologic Benefits Analysis

At the September 12 Economics Benefits Analysis Workshop #4, Montgomery Watson consultants presented results from the historic Hydrologic Benefits Analysis (HBA) of dam releases (photo right). Their findings concluded that the dams have been a source of public benefit by:



- Increasing recharge volumes to the aquifers
- Increasing ground water levels in most areas (especially during drought conditions)
- Creating more stable seasonal ground water levels
- Increasing the reliability of water supply
- Improving the quality of ground water in most areas
- Reducing the rate of seawater intrusion



BMP Moving Ahead with Project-level Process

On September 22, due to the support given by various interest groups, the Board of Directors directed MCWRA staff to redirect the course of the Salinas River Basin Management Plan (BMP) process to a project-level, with a focus on components included in the current BMP Alternative #2. Components of this alternative include:

- Nacimiento spillway modification
- Reservoir re-operation
- Focus on the Salinas River as a conveyance system
- Development of a Salinas River diversion near Spreckels
- Development of water treatment plant(s)
- Creation of a North Valley surface storage system
- Development of new distribution system(s)

It is anticipated that a revised Notice of Preparation of a project-level Environmental Impact Report (EIR) will be issued in December. The level of compliance with the National Environmental Policy Act will be known after the MCWRA meets with federal permitting and regulatory agencies. The release of the Draft EIR for public review is targeted for July 1998.

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Technical Advisor..... Luran Howard
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WATER RESOURCES QUARTERLY

Volume 8, Number 4 - Fall 1997

Purpose: To inform water users and stakeholders of the MCWRA's activities.

50 Years of Service

Origin of the Monterey County Water Resources Agency

January 1947 — Board of Supervisors (BOS) approves Enactment of Flood Control Legislation "...WHEREAS, in the interest of flood control and water conservation, this Board deems it advisable that the entire County of Monterey be formed into one flood control district..."

April 25, 1947 — (Assembly Bill No. 592) "... An Act to create a flood control district to be called Monterey County Flood Control and Water Conservation District (MCFC&WCD)..."

August 11, 1958 — The MCFC&WCD was separated from the Monterey County Road Department.

January 1, 1991 — (Senate Bill No. 2580) The MCFC&WCD became the Monterey County Water Resources Agency (MCWRA).

Origin of the MCWRA Board of Directors

1935 — The Salinas Valley Flood Control and Water Conservation Committee was established as an advisory committee to the BOS.

June 1959 — The BOS created the Salinas Valley Water Advisory Commission (SVWAC) and appointed 20 members.

January 1991 — The SVWAC was abolished, and the Monterey County Water Resources Agency Board of Directors was formed.

Monterey County Celebrates Grand Opening of Water Recycling Projects



The "Project of the Year" award was presented to the Monterey County Water Resources Agency (MCWRA) and the Monterey Regional Water Pollution Control Agency (MRWPCA) by the California Water Reuse Association at the Grand Opening Ceremony of the Monterey County Water Recycling Projects on October 24, 1997 (photo left).

Jointly hosted by Mike Armstrong (MCWRA) and Keith Israel (MRWPCA), Tisha Hutchins (on behalf of Congressman Sam Farr), Marc del Piero (State Water Resources Control Board), Rick Martin (Bureau of Reclamation), Simon Salinas (Chair, Monterey County Board of Supervisors), Steve Collins (Chair, MCWRA Board of Directors), Theresa Canepa (Member, MRWPCA Board of Directors) and Granville Perkins (Water Recycling Project Area Representative) spoke to the approximately 300 attendees regarding the united efforts made to complete these projects.

"...The beginning was 21 years ago; a small group of people met at the Agricultural Extension Office. That group hammered out the guidelines for the Technical Advisory Committee for the County wastewater reclamation study for agriculture..." said Granville Perkins, one of the visionaries of these projects (photo-right). He also expressed his gratitude to those who have been involved in the organizing, planning and implementation processes, by saying "...21 years is a long time to keep your nose to the grindstone; many of you did just that."



Together, Theresa Canepa and Steve Collins pulled the lever of the "water recycling machine" to initiate official facility operations (photo below). The MRWPCA hosted self-guided tours and demonstrations of the wastewater recycling facilities.

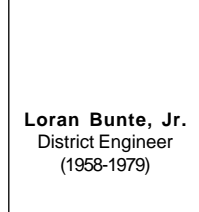


What's INSIDE...

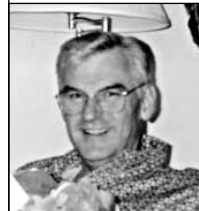
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*50 Years of Service***District Engineers
and
General Managers**

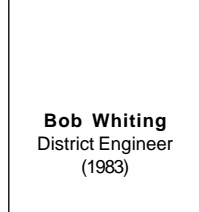
Howard F. Cozzens
District Engineer
(1947-1958)



Loran Bunte, Jr.
District Engineer
(1958-1979)



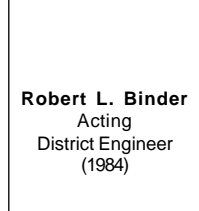
Bob Smith
District Engineer
(1979-1983)



Bob Whiting
District Engineer
(1983)



Wayne MacCrostie
Interim District Engineer
(1983)



Robert L. Binder
Acting
District Engineer
(1984)



William F. Hurst
General Manager
(1984-1995)

General Manager's Note:**50 Years of Service**

This month, the Water Resources Agency celebrates "Fifty Years of Service" to the residents of Monterey County. This Agency has made many significant contributions to the county over the past 50 years, and it is appropriate to pause to remember, even as we concentrate on the present and plan for the future.

After considerable public input, encouraging the Agency to take advantage of the current level of consensus and recently-completed Historical Benefits Analysis, the Board on September 22 directed staff to prepare a project-level Environmental Impact Report (EIR) for the water transfer project. We hope to publish the Notice of Preparation in December, and our schedule anticipates certification of the EIR by December 1998.

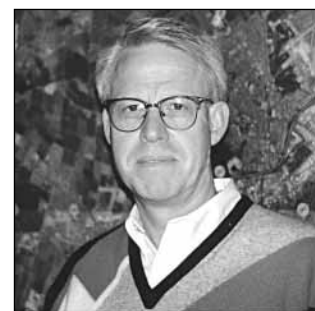
The very successful grand opening of the Monterey County Water Recycling Projects, also known as the Salinas Valley Reclamation Project and the Castroville Seawater Intrusion Project, occurred in October. The preliminary testing, planning, design and construction of these projects have been important, but not as important as the way the people in the project area and throughout the Valley have come together to make these projects a reality. The projects are estimated to account for 35 to 40 percent of the solution for basin overdraft and seawater intrusion, when the regional plant reaches maximum capacity in the future.

We would like to acknowledge and thank the many people who have participated with this Agency and each other in the Historical Benefits Analyses over the past several months. This

has been an intensive effort, requiring significant dialogue and review of a large amount of data and software. The completed work will help refine the assignment of benefits from the two reservoirs to basin properties, and contribute to future cost allocation formulas for the BMP.

"Fifty Years of Service" covers much ground, particularly flood control activities. We are presently involved in an intense level of construction and preparedness as we ready for a potentially wet year. There is work along the Salinas River at nearly 50 sites under the Corps of Engineers 404 Permit; a levee resurfacing project along the Pajaro River; drainage projects around Salinas; new projects along the Carmel River near Highway 1; dredging in the Reclamation Ditch and its tributaries and, many other smaller projects.

"Fifty Years of Service" also includes searching for greater efficiencies in the delivery of our services. We continue to look for better, more equitable ways of providing services. Look for more on this subject in early 1998, as we ask the voters in the Salinas Valley to support revised funding mechanisms for the work of the Agency.

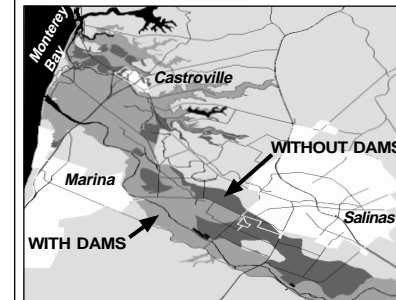


Michael D. Armstrong
General Manager
(1995 to Present)

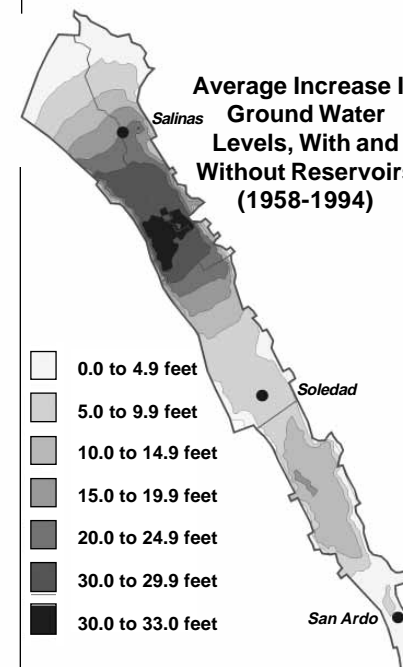
*50 Years of Service***Historical Benefits**

The MCWRA recently completed a series of workshops defining flood control and hydrologic benefits received from the Nacimiento and San Antonio Reservoirs. Using the Salinas Valley Integrated Ground Water and Surface Water Model (SVIGSM), simulations of flooding and hydrologic conditions from 1949 through 1994 were made under "with and without dams" scenarios.

The map below shows the inundated areas in the northern part of the Salinas Valley, in a 100-year flood event.



The contour map below shows the increases in ground water levels in the Salinas Valley as a result of the operation of Nacimiento and San Antonio Reservoirs.

**Flood Control Benefits
Analysis**

At the Economic Benefits Analysis (EBA) Workshop # 4 held on September 12, Schaaf & Wheeler consultants presented the frequency and volume of flood data for 100-year and 25-year flood events under "with and without dams" scenarios (photo above). Based on this data, during a 100-year flood event, the volume of flood water would nearly be doubled if the dams were not built. The next EBA workshop, held on October 2, explored the extent of inundation and erosion potential throughout the Salinas Valley without the dams.

Well Log Maintenance

Well drillers in Monterey County are required to complete a driller's log for every well drilled, destroyed, or repaired in Monterey County. The driller logs reside in MCWRA's Water Quality Section and are cataloged by the Township/Range/Section system of numbering based on location. Cataloged well construction information is utilized in making recommendations to Monterey County Environmental Health - Water Division, for construction/destruction applications for new wells; and also in conducting analyses for many technical projects and reports.

Welcome:

Curtis Weeks.....Deputy General Manager
Christian Schmidt...Water Resources Helper
David Diller.....Engineering Aide III (Temp.)

Good-bye:

Justine Gerbrandt.....Engineering Aide III
Veronica Alejo.....Clerk Typist II (Temp.)

Economic Benefits Analysis

In their analysis of the effect of the construction of MCWRA's two dams on flood control, CH2M HILL consultants (photo below) have converted the resulting flood control benefits into terms of avoided costs due to production loss and repair of field facilities. Benefits from preventing flood damages to buildings and structures have also been included in the economic benefits analysis. The water supply benefits were presented in terms of energy savings due to the existence of higher ground water levels, and the reduction of seawater intrusion impacts. Avoided costs for potential well replacement was also considered.

**Moo.... Over**

A well attended public auction and bid for eight grazing leases on lands owned by the MCWRA around Lake Nacimiento and Lake San Antonio was successfully completed on August 13 in the MCWRA Board Room. The annual lease fees, of over \$80,000, will be collected for the next five years. Over 8,500 acres at Lake Nacimiento and 7,500 acres at Lake San Antonio were up for bid.



Grazing lands around San Antonio Lake

50 Years of Service

Halting Seawater Intrusion

In 1995, the Seawater Intrusion Program, a two-pronged project, came into being. A total of 19,500 acre-feet of recycled water produced by the Salinas Valley Reclamation Project (SVRP) will be delivered to 12,000 acres of farmland under the Castroville Seawater Intrusion Project (CSIP). This program is estimated to decrease seawater intrusion by 40 percent. The \$78 million total cost for these projects was funded by US Bureau of Reclamation and State of California low-interest loans, municipal bonds and local revenue.

SVRP Facts:

- A maximum of 29.6 million gallons-per-day (mgd) will be recycled
- The recycling plant consists of a pumping station (30,000 gallons-per-minute [gpm]), diversion structure, coagulation-flocculation basins, six filtration units, chlorine contact basin (disinfection), and a 28 million gallon storage pond
- Fully automated and computer controlled
- Constructed with 13,000 cubic yards of concrete; 2.4 million pounds of steel reinforcement; 26,000 cubic yards of filter media; 5,100 feet of handrailing; and over 50 miles of electrical wiring

CSIP Facts:

- 46 miles of pipelines (8 to 51 inch diameters)
- 21 supplemental wells (total pumping capacity 62,000 gpm)
- 3 booster stations (total pumping capacity of 12,000 gpm)
- 112 grower turnouts for water
- Deliveries to 222 parcels of farmland
- 9 monitoring stations to track water pressure and conductivity
- Centralized control system with automatic operation at CSIP Operations Center

Consumer Analysis of Tertiary Treated Water

On September 22, the MCWRA Board of Directors approved the budget for a consumer food safety analysis of the tertiary treated water to be produced by the Salinas Valley Reclamation Project (SVRP). The food safety analysis includes a testing program that will provide full-scale verification of the performance of the tertiary treatment plant as well as the storage pond located at the treatment plant site. The testing will also provide data that will help determine whether or not a pond cover may be needed.

Microbiological analyses will be performed to determine the absence or presence of *Cryptosporidium*, *Giardia*, *Cyclospora*, *Legionella*, *E. Coli*, and *E. Coli* 0157. These analyses are being performed on a voluntary basis and will help establish the safety of the tertiary treated water produced by the SVRP.

Testing began in October 1997 and will be completed in January 1998. Under the current plan, full tertiary treatment plant operation and deliveries of tertiary treated water to the Castroville Seawater Intrusion Project (CSIP) will commence in March 1998 when irrigation needs increase. No recycled water will be delivered to the CSIP prior to the completion of testing in January. During the testing period, CSIP water deliveries will be made using supplemental wells.



The SVRP site



Workers rehabilitating CSIP well

CSIP Early Operation Begins

Construction of the Castroville Seawater Intrusion Project (CSIP) began in July 1995. Project completion is scheduled for December 1997. Work related to supplemental wells, booster stations, instrumentation and testing still needs to be completed. When this work is done, all final construction activities will be handled from the CSIP Operations Center in the Castroville Industrial Park.

As existing wells were rehabilitated by MCWRA during project construction, growers began receiving ground water from the supplemental wells through the pipeline system. There are just over 20 customers receiving water at this time, out of a total of 112.

No recycled water is currently being delivered and none is being planned for delivery until water quality testing of the recycled water is complete in January 1998.

Update: Salinas Valley Reclamation Project

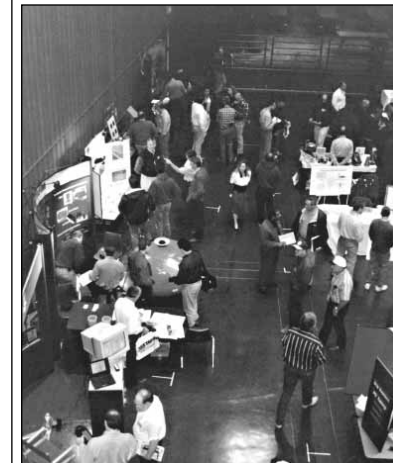
On October 1, the tertiary facility of the Salinas Valley Reclamation Project (SVRP) began producing recycled water. A very successful and well-attended joint board meeting and tour between the MCWRA and Monterey Regional Water Pollution Control Agency was held on October 6 to showcase the new facility. One of the major items of discussion was the upcoming water quality study slated to begin this fall.

50 Years of Service

Water Management

With the establishment of a water conservation program in 1990, the MCWRA has provided numerous water management services to the Salinas Valley agricultural community.

The **mobile irrigation lab** conducts evaluations of growers' irrigation systems and provides recommendations to improve the efficiency and effectiveness of irrigation practices.



The annual **Irrigation and Nutrient Management Conference and Trade Fair** attracts growers, agricultural service providers and crop consultants interested in state-of-the-art irrigation and fertility management practices (photo above).

The **California Irrigation Management Information System (CIMIS)** is a state-wide network of computerized weather stations. This program provides reference evapotranspiration (ET_o) and other weather data to help growers better understand regional and crop water needs. In 1993, the MCWRA expanded the local CIMIS coverage to include all of the Salinas Valley.

Demonstration project field days are conducted regularly. The on-farm demonstrations showcase new technologies available to increase the efficiency of irrigation and fertilizer inputs in vegetable crop production.

SWRCB Funds for 205(j) Final Report

The final 205(j) contract with the State Water Resources Control Board (SWRCB) provides MCWRA \$35,000 to cover the costs for production of the 205(j) Phase VI final report, *Mapping Ground Water Susceptibility to Nitrate and Pesticide Contamination*, which was received by the Board of Directors in August. The report will be available in November.

MCWRA Selected for SWRCB Grant

MCWRA was selected for 1997 federal Clean Water Act Section 319(h) funding in the amount of \$80,000. A draft project work plan and budget is being prepared by the MCWRA, and was presented to the Regional Water Quality Control Board for preliminary review in mid-October. The work plan will reflect nitrate management implementation recommendations made by the Nitrate Technical Advisory Committee.

MCWRA GIS Will Contribute to Protecting Marine Sanctuary

The MCWRA is a signatory member of the Central Coast Joint Data Committee (CCJDC) formed to facilitate the sharing of Geographic Information System (GIS) data from the California Central Coast by all agencies, organizations and interested entities. The main focus of the CCJDC is the development of scientific data to protect the Monterey Bay National Marine Sanctuary.

The CCJDC recently received two federal grants totaling \$89,000. These grants will be used to develop a standard for the documentation of GIS data, to generate an Internet Website for data to be accessed, shared and used to educate the public, and to produce a catalog of framework data for the committee.

Do Water Conservation Rules Apply To Me?

As of August 22, Monterey County has a revised water conservation ordinance — No. 3932. It includes:

- Changes to the retrofit-on-resale program
- Retrofit requirements for remodeling
- Retrofit of all visitor-serving facilities by December 31, 2000

Everyone who lives and/or works in Monterey County is affected; real estate agents, home buyers/sellers/renters, owners/managers of visitor-serving facilities (hotels, restaurants, gas stations, etc.), developers, plumbers, and landscapers.

On-Farm Demonstration Projects

Improving nitrogen use efficiency in crop production is part of the solution to reducing nitrate leaching to ground water — an important water quality goal in the Salinas Valley. The August 22 summer field day was hosted by Gabilan View Farm, Inc., and the October 9 fall field day was hosted by Bruce Church, Inc. The latter event, which attracted an audience of about 50 growers and agricultural service providers, was combined with a seminar addressing other pertinent crop production issues. At both sites, fertilizer applications were reduced, and good crop yields were achieved. These projects demonstrated proven management techniques that reduce the guesswork involved in irrigation and fertilization decisions.



MCWRA irrigation specialist Danyal Kasapligil discusses irrigation and fertilizer management practices at a field day

50 Years of Service

Flood Control



The True Believers: Building Nacimiento Dam was a dream of many distinguished citizens, such as those shown above. These were the planners who began the discussion, surveying and campaigning nearly 50 years ago. Those who can be identified in the photo are Supervisor Bill Hargis (front-left), Bruce McClain of Public Works (back-left, sitting), County Recorder Bill Minimum (middle, sitting), County Administrator Walter Mansfield (back-right, sitting), MCFC&WCD District Engineers Loran Bunte, Jr. (middle-front) and Howard Cozzens (foreground-right).



Nacimiento Reservoir

Dam Type: Earth-filled
Dam Height: 215 feet
Dam-top Length: 1,450 feet
Construction: Completed in 1956
Capacity: 377,900 acre-feet
Lake Area: 5,727 acres
Lake Length: 18.6 miles



San Antonio Reservoir

Dam Type: Earth-filled
Dam Height: 198 feet
Dam-top Length: 1,432 feet
Construction: Completed in 1965
Capacity: 335,000 acre-feet
Lake Area: 7,141 acres
Lake Length: 17.5 miles

Reservoir Conditions

Percolation releases from Lake San Antonio and Lake Nacimiento were temporarily halted on September 15 this year. This allows private property owners along the Salinas River to perform channel maintenance of the river before the rainy season begins. Combined storage of both reservoirs was 49 percent in early November.

In early November, Lake San Antonio storage was at 204,000 acre-feet. The lake was 14 miles long and had a surface area of 3,800 acres. Minimum flow releases of 3 cubic-feet-per-second (cfs) were being made. Lake Nacimiento's storage was 146,000 acre-feet. The lake had a surface area of 3,300 acres and was 15 miles long.

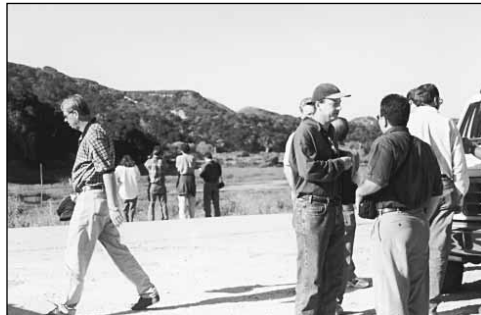
Potential Water Transfer/Storage Facility Sites

After receiving direction from the Board of Directors to focus on BMP Alternative #2 (see page 8), the BMP Team [composed of MCWRA staff, engineers specializing in dams and pipelines and fish and biology scientists] visited sites that may be used to enhance water supplies in the Salinas Valley.

On October 6, the team visited the Nacimiento spillway (photo below). The team's investigations confirmed the viability of lowering the existing spillway and placing a rubber dam on top of the modified spillway.



On October 7, the team visited potential sites for surface storage in the northern Salinas Valley area. Assisted by the US Bureau of Land Management, the team toured Barloy (photo below) and Pilarcitos Canyons.



Hosted by Malcolm Crawford of Marina Coast Water District, the team also visited Armstrong Ranch (photo below).



The team then visited Espinosa Lake and Merritt Lake sites. The preliminary analyses indicate that all sites are feasible to use as storage facilities, however, Barloy and Pilarcitos Canyons and Espinosa Lake have more environmental issues that would need to be addressed.



The team also visited potential sites for a Salinas River diversion at the Davis Road river crossing, the Highway 68 bridge near Spreckels and a location opposite the Firestone complex (photo above). All sites are equally viable from an engineering perspective. Both a rubber dam and Ranney Collectors are under consideration as diversion facilities. But these options also have environmental ramifications. A series of meetings with federal, state and local agencies has been scheduled to discuss the regulatory and permitting requirements in constructing these facilities.

50 Years of Service

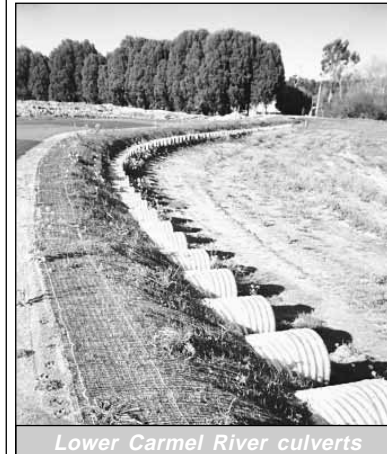
Flood Protection



1995 Salinas River flooding

January 1984 — Flood Plain Management Ordinance

"...Board of Supervisors adopts County flood plain Ordinance and maps to participate in the National Flood Insurance Program, to be administered by the MCFC&WCD..."



Lower Carmel River culverts

July 1996 — FEMA-CRS Program awards Monterey County

"...In October 1991, FEMA's Community Rating System (CRS) recognized Monterey County's performance above and beyond the National Flood Insurance Program's flood prevention requirements, by awarding a 5 percent reduction to all policies; then a 15 percent reduction in flood insurance premiums for Monterey County citizens starting October 1, 1996..."



Repairing Pajaro Levee

FEMA's Flood Plain Management Workshop



On August 6, the MCWRA hosted an all-day flood plain management workshop that was attended by about 30 people from government agencies of the Central Coast area (photo above). State Department of Water Resources staff, acting for the Federal Emergency Management Agency, presented information on flood plain development criteria, structural flood proofing methods, and regulatory functions performed by local agencies under the National Flood Insurance Program.

Pajaro Levee Resurfacing Project Underway

Having experienced the 1995 flood, and anticipating a possible wetter winter under El Niño atmospheric conditions this year, no one is taking a chance on the Pajaro River. On September 23, the Monterey County Board of Supervisors approved a \$700,000 loan from the county's general fund for the Pajaro Levee Resurfacing Project. The project is intended to allow all sections of the river channel north of Highway 1 to safely pass a 20-year flood event flow capacity.

Deadline for EIR Comments on SLO Nacimiento Water Project Extended

The Board of Supervisors of San Luis Obispo County has extended the deadline for receipt of comments on their SLO Nacimiento Water Project EIR to February 1, 1998. For further information please contact Joe Madruga at (408) 755-4864.

Moss Landing Levee Hearing in December

John Gilchrist & Associates and Mesiti Miller Engineers, retained by the MCWRA, have begun the process to acquire various permits from the state Department of Fish & Game and the US Army Corps of Engineers for the Moss Landing levee project. The comment period for the negative declaration has ended with no comments having been received. The Coastal Commission has scheduled a hearing on this project for December 9 - 12.

Seeking Permission from Ralph Lane Property Owners

The MCWRA has been requesting the permission of various property owners to maintain, clear and make improvements to the Ralph Lane drainage ditch. The MCWRA crew has already removed silt and cleared vegetation along parts of the Ralph Lane drainage ditch where access has been given by the property owners.

Harrison Road Flood Control Work Begun

On October 1, Madonna Construction began installing a storm drainage system with 2,800 feet of storm drain pipe ranging in inside diameter size from 18 to 42 inches. A 42-inch pipe will be installed nearly 300 feet under Highway 101 to drain the flood waters into Santa Rita Creek. This \$600,000 project will be completed in nine weeks and is designed to accommodate a 100-year storm event.



Drainage work on Harrison Road